

REMARKS

This is in response to the Office Action dated September 22, 2003. Claims 6 and 12-14 have been canceled. Thus, claims 1-5, 7-11 and 15-17 are now pending.

General

The formality objections raised in paragraphs 10-13 of the Office Action have been addressed and overcome by the claim changes set forth above.

For purposes of example, and without limitation, certain example embodiments of this invention relate to a technique for *improving adherence of a reflective pixel electrode in a liquid crystal display (LCD) to an underlying insulating layer*. As shown in Fig. 2A of the instant specification for example, the LCD includes a TFT 43, interlayer insulating film 44, molybdenum nitride (MoN) inclusive film 45 and conductive reflective pixel electrode 46 (e.g., made of Al) which defines at least part of a pixel of the LCD. The reflective pixel electrode 46 is in electrical communication with a drain 54 of the TFT via contact hole 66 defined in the interlayer insulating film 44.

Surprisingly, it has been found that the use of MoN for layer 45 provides improved adhesion between the reflective pixel electrode 46 and interlayer insulator 44 thereby resulting in better yields. Unexpectedly, reduction of electrolytic corrosion is also achieved due to the MoN under the reflective LCD pixel electrode.

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Mitsui in view of Hirakawa. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 relates to a liquid crystal display (LCD) including a film comprising molybdenum (Mo) nitride formed immediately below and in contact with a reflective pixel electrode. As explained above, for example, it has unexpectedly been found that the use of molybdenum nitride below a reflective pixel electrode provides improved adhesion between the reflective pixel electrode and the underlying interlayer insulator thereby resulting in better yields. Unexpectedly, reduction of electrolytic corrosion may also be achieved due to the molybdenum (Mo) nitride under the reflective LCD pixel electrode.

The alleged Section 103(a) combination of Mitsui and Hirakawa is fatally flawed. Hirakawa relates to an EPROM – not an LCD. One of ordinary skill in the art would never have used Hirakawa's EPROM structure in a pixel electrode structure of an LCD. EPROMs and LCD are diverse types of devices (i.e., non-analogous) and have virtually nothing to do with one another. Moreover, the MoN barrier layer in Hirakawa is used solely to prevent diffusion into the underlying silicon. This problem in Hirakawa which is solved by the MoN barrier is not present in the LCD of Mitsui. In particular, the pixel electrode of Mitsui does not contact a-Si. Thus, there is absolutely no reason why one of ordinary skill in the art would ever have used Hirakawa's MoN barrier in Mitsui's pixel

electrode because the problem sought to be solved by the MoN in Hirakawa is not present in Mitsui. Thus, the alleged Section 103(a) combination is in error, and should be withdrawn.

Claims 3 and 8

Claim 3 requires that "the film comprising molybdenum nitride has a nitrogen content between 5 atomic % and 30 atomic %." Kurogane fails to disclose or suggest any MoN film having a nitrogen content from 5-30% to enhance adhesion between a reflective metal based layer and an interlayer insulator comprising a resin or the like. The unexpected results associated with the invention of claim 3 are not disclosed or suggested in the art of record. This range would not have been obvious, and the unexpected results associated with the same overcome any possible *prima facie* case of obviousness relating to the claimed range.

Claim 8 defines over the cited art in a similar manner.

Other Claims

Since the Section 103(a) combination of Mitsui and Hirakawa is flawed for the reasons discussed above, all pending claims are in condition for allowance.

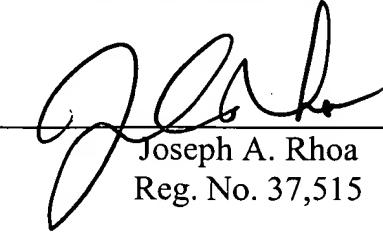
Conclusion

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

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Respectfully submitted,

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